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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN D. HOTTOVY

Appeal 2009-001955
Application 10/699,151
Technology Center 1700

Decided:¹ May 29, 2009

Before CHUNG K. PAK, TERRY J. OWENS, and CATHERINE Q. TIMM,
Administrative Patent Judges.

TIMM, *Administrative Patent Judge.*

DECISION ON APPEAL

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

I. STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1-6. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Claim 1 is illustrative of the invention on appeal:

1. A polymerization process comprising:

polymerizing in a loop reactor having an inner surface, at least one olefin monomer in a liquid medium to produce a fluid slurry comprising solid olefin polymer particles in a liquid medium, wherein said inner surface of said loop reactor has a root mean square surface roughness less than about 120 micro inches.

On review is the Examiner's rejection of claims 1-6 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 3,244,681 issued April 5, 1966 to Rohlffing et al.²

II. DISPOSITIVE ISSUE

Has Appellant established that the Examiner reversibly erred in finding a suggestion in Rohlffing for smoothing the inner surface of a loop reactor to a root mean square surface roughness less than about 120 micro inches?

III. FINDINGS OF FACT

² The Examiner refers to the patent as "Stanley et al." in some locations and "Rohlffing et al." in others. Appellant refers to the patent as "Rohlffing." We will also refer to the patent as "Rohlffing."

The following enumerated Findings of Fact (“FF”) are of particular relevance:

1. The Examiner finds that Rohlffing suggests employing a loop reactor with smooth inner surfaces to reduce reactor fouling (Ans. 4, citing Rohlffing, col. 1, ll. 61-64 and col. 6, claim 3).
2. According to the Examiner, it would have been obvious to one of ordinary skill in the art to polish the inner surface of the loop reactor of Rohlffing to obtain a root mean square surface roughness less than about 120 micro inches to further reduce fouling (Ans. 4).
3. Appellant contends that column 1, lines 60-65 of Rohlffing is devoid of a teaching or suggestion of a loop reactor surface having a root mean square surface roughness less than about 120 micro inches and there is no appropriate reason to modify the Rohlffing reference to obtain the claimed degree of smoothness (Br. 6).
4. Column 1, lines 60-65 of Rohlffing indicate that methods and apparatus were known in the loop reactor art “for reducing the fouling of reaction surfaces by carrying out the polymerization reaction in a tubular closed loop reaction zone with smooth surfaces.”
5. Appellant points out that column 1, lines 60-65 merely states that the surface is smooth without providing a value of roughness or smoothness (Br. 5).
6. According to Appellant’s Specification “[k]nown slurry loop reactors have root mean square surface roughness values of 125 or greater (in units of micro inches).” (Spec. ¶ [0028].)

7. “Appellant believes that the roughness of the Rohlfling [loop reactor surfaces] is well above 125 micro inches (far outside of the claimed range) when considering the age of the reference.” (Br. 6.)
8. Appellant’s Specification does not disclose any new or unobvious method of obtaining the claimed level of smoothness (Spec. in its entirety).

IV. PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In considering the question of the obviousness, we consider what the prior art references expressly teach, but we also consider what the prior art would have suggested to one of ordinary skill in the art at the time the invention was made. *Merck & Co., v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) and *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). We also take into account the “inferences and creative steps,” or even routine steps, that an ordinary artisan would employ. *Ball Aerosol and Specialty Container, Inc. v. Limited Brands, Inc.*, 555 F.3d 984, 994 (Fed. Cir. 2009). “If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”

Attorney argument in the briefs cannot take the place of evidence. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

V. ANALYSIS

There is no question that Rohlfing suggests employing a reactor with smooth inner surfaces (FF 1); just how smooth, the reference does not disclose (FF 5). While Appellant argues that he believes that the roughness “is well above 125 micro inches (far outside of the claimed range) when considering the age of the reference” (FF 7), Appellant offers no evidence in support of this belief. Therefore, this attorney argument in the Brief is of little probative value. Appellant’s Specification states that “[k]nown slurry loop reactors have root mean square surface roughness values of 125 or greater (in units of micro inches).” (Spec. ¶ [0028]). But again there is no objective evidence in support of this statement. Nor does the statement, or the Specification as a whole, provide evidence that Appellant had taken into account the teachings of Rohlfing when making this statement. It remains that the evidence of record does not establish that one of ordinary skill in the art would have been limited to using smooth walled reactors of sufficient roughness to be outside the claimed 120 micro inch range.

On the other hand, the Examiner has pointed to an explicit teaching within Rohlfing suggesting that one of ordinary skill in the art would have selected a reactor with smooth walls to prevent fouling (FF 1). The desire of preventing fouling and the teaching of the general condition of smoothness provides support for a finding that nothing more than routine experimentation was required for one of ordinary skill in the art to determine the degree smoothness (measured by, for instance, root mean square surface roughness) that would result in the expected anti-fouling property. Therefore, taking into consideration, as we must, the level of ordinary skill in the art, *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966), we agree with

the Examiner that the evidence supports a conclusion of obviousness in the absence of any evidence that the claimed degree of smoothness represented by the claimed root mean square surface roughness range was not obtainable by conventional means within the skill in the art or that Appellant obtains unexpected results. *See In re Aller*, 220 F.2d 454, 456 (CCPA 1955) (when prior art teaches the general conditions of a claimed process, modifications within the capabilities of those of ordinary skill in the art obtainable by routine experimentation support an obvious rejection unless the applicant shows that the particular claimed range produces a new and unexpected result).

Appellant does not rely upon any evidence that the claimed range of smoothness represented by the root mean square surface roughness measurement produces unexpected results. Nor does Appellant advance a convincing argument supported by evidence that the claimed level of smoothness would not have been obtainable by those of ordinary skill in the art. In fact, Appellant's own Specification does not disclose the method used to obtain the claimed level of smoothness (FF 8). Assuming Appellant's Specification provides enablement for what is claimed, it is reasonable to conclude that methods of obtaining the claimed smoothness were known in the art.

VI. CONCLUSION

Appellant has not established that the Examiner reversibly erred in finding a suggestion in Rohlfing for smoothing the inner surface of a loop reactor to a root mean square surface roughness less than about 120 micro inches. Therefore, we sustain the Examiner's rejection of claims 1-6 under 35 U.S.C. § 103(a).

VII. DECISION

The decision of the Examiner is affirmed.

VIII. TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal maybe extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

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